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## **Habitat use of a population of bottlenose dolphins, *Tursiops truncatus gephyreus*, analyzed by means of Kernel Density Estimation (KDE) method**

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The San Antonio Bay (SAB), in Patagonia, Argentina, harbors a resident population of bottlenose dolphins (*Tursiops truncatus gephyreus*). It seems a privileged area to give birth and nurse calves. In the context of declining populations worldwide and more particularly in South America, preserving the SAB population takes a considerable significance. Yet the SAB is facing human population growth and touristic development, which represent potential threats for the dolphin population, especially dolphin-watching activities. In this context, the aim of this study was to understand the bottlenose dolphin's habitat use within the bay, and to consider how this information could be used in prospective management strategies. Particularly, we aimed at using the Kernel Density Estimation (KDE) method to map the intensity of space use for essential behavioural patterns. To this end, we collected behavioural information on dolphins during 25 boat-based surveys in the bay in 2011. The habitat use of the bay was heterogeneous: some areas were more intensely used than others. Dolphins spent most of their time traveling and diving. Variables associated to resting behaviours, e.g. school size and depth, indicated that the SAB would be a safer place compared to other known residency areas, confirming its suitability for conservation purposes. KDE analyses showed that behaviours are not evenly distributed inside the bay. Bottlenose dolphins being more sensitive to anthropogenic disturbances while engaged in resting or socializing behaviours, it is crucial to locate these behaviours. In SAB, the KDE shows that resting and socializing areas are located in the Northern part of the bay, indicating that it should constitute a priority protected area in potential future management strategies. Furthermore, our results show that the KDE method is an appropriate and advantageous tool when determining critical habitats, worth being more widely used.